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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/658,445	09/08/2003	Michael J. Sullivan	B03-56	4734

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EXAMINER

HUNTER, ALVIN A

ART UNIT	PAPER NUMBER
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3711

DATE MAILED: 04/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	10/658,445		SULLIVAN ET AL.	
	<b>Examiner</b>		<b>Art Unit</b>	
	Alvin A. Hunter		3711	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 08 September 2003.
- 2a) ☐ This action is **FINAL**.      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-32 is/are rejected.
- 7) ☒ Claim(s) 15 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>09/08/2003</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Claim Objections***

Claim 15 objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 1 requires the presence of a reactive co-agent. Claim 15 cannot further limit if there is no presence of a reactive co-agent.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In regards to claims 1, 20, 25, 26, the specific gravity is recited as being in g/cm<sup>3</sup>. Specific gravity is a unitless value (density of the material vs. the density of water). What is the applicant trying to imply by having the specific gravity in g.cm<sup>3</sup>? For this reason, claims 1-32 are rejected.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

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the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 4, 5, 12, 16-23, 25, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moriyama et al. (USPN 6705956).

In regards to claim 1, Moriyama et al. discloses a four-piece golf ball having a core with a core layer (2) (1), thin dense layer (3), and cover (4) (See Abstract). The core layer (2) comprises the following:

- a) an elastomeric composition (see Column 3, lines 37 through 48),
- b) a reactive co-agent, in 10 to 35 parts by weight wherein the term "about" will be defined as any value within +/-1 of the range being claimed (See Column 3, lines 49 through 67), and
- c) a crosslinking agent (See Column 4, lines 1 through 14).

It is also noted that having a reactive co-agent in amounts of less than 10 parts reduces the flight distance and makes the core soft (See Column 3, lines 49 through 67). One having ordinary skill in the art would have found it obvious to have a co-crosslinking agent of "about" 10, in order to optimize the rebounding characteristics of the golf ball. The core layer (2) is noted as being made from the same rubber as than which was used for the innermost core (1) (See Figure 1 and Column 5, lines 13 through 20). In regards to claim 7, Moriyama et al. noted that the golf ball comprises an thin dense layer (3) between the core layer (2) and cover (4) wherein the thin dense layer has a thickness of 1.0 to 2.5mm (See Column 7, lines 45 through 49). It is implied that the thin dense layer is at a radial distance outside a centroid radius of the golf ball. The core layer has a thickness of 1.0 to 4.0mm. Being that the core layer encases the

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innermost core, the outer diameter of the core layer, which the same as that of the inner diameter of the thin dense layer is 32.3 to 35.3 (See Table 7 and Column 4, lines 55 through 67).

In regards to claim 2, the elastomeric composition for the core is a diene polymer (See Column 3, lines 37 through 48).

In regards to claim 4, the crosslinking agent is a peroxide (See Column 4, lines 1 through 14).

In regards to claim 5, the diene rubber is polybutadiene (See Column 3, lines 37 through 48).

In regards to claim 12, the rubber is from the group consisting of natural rubber, polyisoprene, styrene-butadiene, EPDM, and the like (See Column 3, lines 36 through 48).

In regards to claim 16, reactive co-agent comprises a metal salt of a diacrylate (See Column 3, lines 49 through 67).

In regards to claim 17, the metal is zinc (See Column 3, lines 49 through 67).

In regards to claim 18 and 19, it is implied that the core layer has some type of hardness, therefore, one having ordinary skill in the art would have found it obvious to have an intermediate layer with a PGA compresion of greater than about 0, more so greater than about 10, in order to optimize the softness and resilience of the golf ball.

In regards to claim 20, the intermediate layer has a specific gravity of 1.1 to 1.4, wherein about is being defined as a value +/-0.5 within that of the applicant's range (See Column 5, lines 7 through 13).

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In regards to claim 21, Table 7 shows the core having a diameter of 31.3mm and the intermediate layer having thickness of 1.9mm. It is submitted that that the intermediate layer has a diameter less than 41.15mm.

In regards to claim 22, the core layer encases the core (See Figure 1).

In regards to 23, the same composition for the core layer is the same composition for the innermost core, therefore, the innermost core has the same amount of reactive co-agent as the core layer (See Column 5, lines 13 through 20).

In regards to claim 25, the thin dense layer has specific gravity of 1.1 to 1.5 wherein about is being defined as a value  $\pm 0.5$  within that of the applicant's range (See column 27 through 44).

In regards to claim 30, the thin dense layer comprises a specific gravity increasing agent (See Column 7, lines 58 through 67).

In regards to claim 31, the thin dense layer is comprised of a diene block copolymer with tungsten powder (See Column 7, lines 58 through 67).

In regards to claim 32, the thin dense layer is injection molded over the core layer, thereby implying that the layer was applied in liquid form (See Column 11, lines 50 through 56).

Claims 3 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moriyama et al. (USPN 6705956) in view of Suzuki et al. (USPN 6646347).

Moriyama et al. does not disclose having a polybutadiene catalyzed by a metallocene. Suzuki et al. discloses a polybutadiene catalyzed by a metallocene wherein the polybutadiene has improved cold flow characteristics for storage (See

Background of the invention and Summary of the Invention). One having ordinary skill in the art would have found it obvious to catalyze polybutadiene with a metallocene catalyst, as taught by Suzuki et al., in order to improve cold flow characteristics for storage.

Claims 3, 7, 8, 9, 10, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moriyama et al. (USPN 6705956) in view of Gillis et al. (USPN 6060572).

Moriyama et al. does not disclose the use of sulfur as a crosslinking agent.

In regards to claims 7 and 8, Gillis et al. notes that the use of sulfur is common for curing EPDM (See Column 1, lines 25, through 33). One having ordinary skill in the art would have found it obvious to cure EPDM with sulfur, as taught by Gillis et al., because it is a commonly known practice within the art.

In regards to claims 3 and 9, Gillis et al. notes that using a metallocene catalyst with EPDM in creases impact strength, toughness, melting properties, and clarity (See Column 2, lines 60 through 65). One having ordinary skill in the art would have found it obvious to use a metallocene catalyst with EPDM, as taught by Gillis et al., in order to improve the strength, toughness, and processability of the golf ball.

In regards to claim 10 and 11, Gillis et al. notes that EPDM containing 5-ethylindiene-2-norbornene has fast curing time when using sulfur (See Column 1, lines 54 through 63). One having ordinary skill in the art would have found it obvious to have 5-ethylindiene-2-norbornene within the EPDM, as taught by Gillis et al., in order to reduce time of producing the golf ball. It is also noted that the degree of crystallinity is

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significant when the content of ethylene is over 55% weight (See Column 2, lines 48 through 59). One having ordinary skill in the art would have found it obvious to have an ethylene content greater than 55%, as taught by Gillis et al. in order to increase the crystallinity of the polymer. In light of the above, one would have found it obvious to have 5-ethylindiene-2-norbornene in any amount, so long as the ethylene content is greater than 55%, in order to increase the rate of curing for EPDM.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Moriyama et al. (USPN 6705956) in view of Chen et al. (USPN 4886856).

Moriyama et al. does not disclose having maleic anhydride. Chen discloses a styrene copolymer with maleic anhydride in order to improve impact resistance (See Summary of the invention and paragraph bridging Columns 4 and 5). One having ordinary skill in the art would have found it obvious to have a maleic anhydride blended with a styrene copolymer, as taught by Chen et al., in order to improve the impact resistance of the golf ball.

### ***Allowable Subject Matter***

Claims 14, 18, 19, 24, and 26-29 may be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alvin A. Hunter whose telephone number is 703-306-



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5693. The examiner can normally be reached on Monday through Friday from 7:30AM to 4:00PM Eastern Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steve Garbe, can be reached on 703-308-1207. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Alvin A. Hunter, Jr.

  
Stephen P. Garbe  
Primary Examiner